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the innermost scarcely exceeding the vaginula, with a broad subvaginal base and a linguulate, very obtuse apex. Inflorescence monœcious, male flower on a short stalk.

A MOSS NEW TO THE UNITED STATES.—*Pilotrichum undulatum*, Beauv., a West Indian moss. occurs, in a small collection of plants made recently near Fort Reid, on the upper St. Johns, Florida, by Miss E. S. Boyd. The specimens, though scanty, are in fruit. The moss has a general resemblance to small specimens of *Nectera penata*, but the leaves are very inequilateral, and strongly nerved more than half way; and the perichæatial leaves, are peculiar, the lower ones ovate-acuminate with squarrose tips, and the upper ones narrowly linear, very slender, and overtopping the capsule. With it were also *Pilotrichum cymtifolium*, Sull., *Leucobryum minus*, *Thuidium tamariscinum*, a large sterile *Fissidens*, and the red Louisiana lichen, *Chiodecton rubro-cinctus*, Nylander.—DANIEL C. EATON, New Haven, March 29, 1877.

BOTANICAL CONTRIBUTIONS BY ASA GRAY, *Proc. Amer. Acad.*, Vol. 12. December, 1876.—This contribution to North American Botany is one full of interest. The list of new species is large and principally western, though there is quite a representation from the south. The pamphlet also contains two fine plates, one of *Arctomecon Californicum*, Torr., and the other of a new genus and species *Canbya candida*, Parry. Then follows a description of the new genus dedicated by Dr. Parry to Mr. Wm. M. Canby and a reconstruction of the very rare genus *Arctomecon*, Torr. These genera belong to the order *Papaveraceæ* and are both very peculiar in the persistency of the corolla. The new genus was discovered in S. E. California by a botanical party, consisting of Doctors Palmer and Parry and Mr. Lemmon, May 18, 1876. The new species are supplied by various parties, Rev. E. L. Greene, T. S. Brandegee, Dr. Parry, Dr. Rothrock, and Powell's Expedition of 1875, being the principal contributors. Of course the numbers of the *Astragali* are increased in this case by an addition of seven species and two varieties. The proportions this genus is beginning to assume as our western territory is becoming more thoroughly explored is something startling. A new *Lespedeza* is described, having been found in Minnesota, Illinois and Iowa.

The relations of *Clethra* and *Pyrola* are considered and rather than break up the original *Ericaceæ* into separate orders, as has been done by DeCandolle and other European botanists, Dr. Gray combines *Clethra* and the tribe *Pyroleæ* into the third sub-order, *Pyrolinæ*. The section *Steironema*, Raf. of *Lysimachia* is restored to generic rank and hence the species of N. United States are as follows:

Steironema ciliatum, Gr.—*Lysimachia ciliata*, L.

S. radicans Gr.—*L. radicans*, Hook.

S. lanceolatum, Gr.—*L. lanceolata*, Walt.

S. longifolium, Gr.—*L. longifolia*, Pursh.

The genus *Asclepias* and its allies are rearranged in the following genera; *Podotigma*, Ell., *Anantherix*, Nutt. (§ 2 of *Acerates* in Gray's Man., 5th Ed.), *Asclepiodora*, Gr. (containing *Acerates paniculata*, Decaisne.), *Asclepias*, L., *Acerates*, Ell., *Schizonotus*, Gr. (containing *Gomphocarpus purpurascens*, Gray, Bot. Calif.), and *Gomphocarpus*, R. Br. A key is also given to the North American species of the genus *Asclepias*. Dr. Gray also gives a conspectus of the confused and difficult genus *Gonolobus*, Michx., with the sections *Dictyolobus*, *Eugonolobus* and *Chthumalia*, the last being reduced from generic rank.—J. M. C.

ON EXCRESCENCES AND EXCENTRIC WOOD GROWTHS IN THE TRUNKS OF TREES.—This is the subject of a communication of Mr. Thomas Meehan to the Academy of Natural Sciences of Philadelphia, December 19, 1876, and appears in the Proceedings, Part III, of that year. The strange excrescences found in so many of our trees have often been the causes of no small curiosity in regard to the cause of their formation. Till very lately these monstrous growths have been referred to insects as their origin. Mr. Meehan calls attention to the fact that these excrescences were often of a uniform

character in each species of tree. They are not merely abnormal developments of the bark, but are composed of true woody fibre disposed in annual rings and surrounded by bark, as though they were so many separate centers of growth. Mr. Meehan suggests the following explanation of these excrescences. By experiment it is shown that there is no difference in the first place in any part of the cambium layer or layer of growth, although subsequently the inner part produces wood cells. "The same cell may become permanent tissue or generating tissue, and from the generative tissue may come before the season of growth closes every form of structure known to anatomists, from pure wood to the outermost cuticle of the bark. We know that cell-growth is not always uniform in its operations. The law that changes the outermost series of newly cells into liber need not necessarily operate so exactly as to make them perfect to this end—a few may be thrown off into the liber as generative tissue—and, granting this possibility, we see how the woody granules in the apple bark are formed." In this same way, Mr. Meehan infers, the larger excrescences with rings of growth are formed. In this case "the imperfectly formed liber cells, still retaining their generative power, make a growth the next season, forming a layer of wood and making its own cortical layer, simultaneous with the normal wood growth of the tree, assimilating from the same store of reserve material that the normal growth does."—J. M. C.

WOLFIA.—*Wolfia* in Gray's Manual, page 480 (Ed. of 1869), is described as having "fronds rootless, proliferous from a cleft or funnel-shaped opening at the base, the offspring soon detached." Last summer I watched *Wolfia* pretty closely and with much interest. In plants from my locality the manner of its reproduction seems to be this. I noticed plants that were nearly spheres, others that were oblong, or prolate spheroids, and of these some had indentations about the middle, which varied in depth, until in some of the plants the two portions were merely in contact and these soon went apart, making two perfect plants.—DR. H. C. BEARDSLEE, *Painesville, Ohio*.

Prof. Theo. B. Comstock, of Cornell University, proposes to conduct an "Aquatic Summer School of Natural History." A steamer is to be chartered for four or six weeks to cruise along the "south and west shores of Lakes Erie, Huron and Superior, thence along the north and east shores of the same waters." The route is certainly a tempting one to botanists and the fee, \$125 including everything for 30 days, is so moderate that we have no doubt many will be tempted to make application to join the expedition.

We take pleasure in calling attention to a circular issued by H. Eggert of St. Louis, Mo. It surely presents a rare chance to botanists to obtain sets of the fine and many rare plants found in the neighborhood of St. Louis. We have received a set of Mr. Eggert's plants and have found them to be exceedingly fine specimens and can cordially recommend them to our friends. Mr. Eggert offers for sale or exchange a selection from a list of about 500 species collected in the vicinity of St. Louis. He allows those who wish to buy, the privilege of choosing from the list such plants as they desire to obtain, at the rate of 6 cents per species for full and complete specimens. Dr. George Engelmann is given as reference. The list may be procured by addressing H. Eggert, 918 Wash St., St. Louis, Mo.

In a note from Prof. M. W. Harrington, written from Leipzig, Germany, the following is of general interest. "The great German botanist, Prof. Hofmeister, died a few days ago. The two parts of his *Handbuch der Physiologischen Botanik*, promised for 1876, were not prepared and the book must therefore remain unfinished. To those who have possessed the earlier parts—some already 10 years old—this must be a source of great regret.

ALBINISM IN PLANTS.—In the Oct. No. of the BULLETIN I see a notice of a white *Lobelia syphilitica*, L. In confirmation of this fact, I will state that I have found two